

INTEX-A: Test flight 1 (June 26, 2004; Saturday)

This was the first INTEX-A flight with the main objective of testing instrument performance under a variety of atmospheric and aircraft operational conditions. The basic flight patterns and there location are shown in the slides below. Total flight duration was 3.5 hours with a 10 am takeoff. We flew up the California central valley (pollution layers at about 500 hPa) and did a spiral descent near Point Arena, then a boundary layer run off the San Francisco/Big Sur coast. North of Edwards AFB we ascended to 41,000 ft. It was possible to test instrument performance from 1000 to 41,000 ft under a variety of aircraft speeds (typically very slow, nominal, and very high) as well as humidity and pollution conditions. At 41,000 ft we sampled the lowermost stratosphere ($\text{O}_3 > 200$ ppb).

Several of the instruments (Lidar, O_3 , CO_2 , HNO_3 -UNH etc) were able to operate normally while others detected difficulties that need to be fixed. The principle instrument difficulties were mechanical in nature but also indicated the inability of some instruments to sample at 41,000 ft and at slow aircraft speeds. It appears that as long as the indicated aircraft speed is in excess of 250 knots, sampling difficulties were minimized or eliminated. Cabin heating problems on a 30 minute run at 1000 ft were minimal. This was a very successful test flight and went exactly according to plan.

The navigational data from this flight is available on anonymous ftp site: <ftp2.dfrc.nasa.gov>

TYPE ACFT DC-8		CALL SIGN NASA817	DATE	FROM EDWARDS AFB N 34 54.3 W117 53.0		TO EDWARDS AFB N 34 54.3 W117 53.0		PLND TO 00:00		ACT TO		PILOT		COPILOT	
TOT DIST 1101.9		TOT TIME 03+21		FUEL REQ 32845								NAVIGATOR		ENGINEER	
TP DTD#	Fix/Point Description	FREQ	Latitude Longitude	Alt Wind	TAS GS	TC MC	LEG DIST DIST REM	LEG TIME TIME REM	ETA	RETA	ATA	REMARKS			
1	KEDW/A EDWARDS AFB		N 34 54.3 W117 53.0	2302M		058 044	5.0 1097	00+00 03+21	00:00						
2	EHF/R SHAFTER	101X 115.40	N 35 29.1 W119 05.8	20000M	400 400	296 283	71.4 1025	00+12 03+10	00:12						
3	SGD/R SCAGGS ISLAND	058X 112.10	N 38 10.8 W122 22.4	20000M	400 400	316 301	225.7 800	00+34 02+36	00:45						
4			N 38 20.6 W124 19.6	20000M	400 400	276 261	92.9 707	00+14 02+22	00:59						
	.delay		N 38 20.6 W124 19.6	20000M	400 400	276 261	0.0 707	00+15 02+07	01:14						
5			N 37 50.0 W123 00.0	10000M	N/A N/A	116 101	69.9 637	00+15 01+52	01:29						
6			N 36 00.0 W121 55.0	10000M	250 250	155 140	121.6 515	00+29 01+23	01:58						
7	MGO/R MORRO BAY	071X 112.40	N 35 15.1 W120 45.6	29000M	360 360	129 114	72.2 443	00+12 01+11	02:10						
8	AVE/R AVENAL	118X 117.10	N 35 38.8 W119 58.7	29000M	420 420	058 044	45.0 398	00+06 01+05	02:16						
9	ECA/R MANTECA	107X 116.00	N 37 50.0 W121 10.3	31000M	420 420	336 322	143.1 255	00+20 +45	02:37						
10	EHF/R SHAFTER	101X 115.40	N 35 29.1 W119 05.8	41000M	440 440	145 130	172.7 82	00+23 +21	03:00						
11	EDW/R EDWARDS	111X 116.40	N 34 58.9 W117 44.0	29000M	N/A N/A	114 101	73.5 9	00+11 +10	03:11						

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